

# The Economics of National Health

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A NATION'S productivity—its real wealth—is dependent on the mental, physical, and social health of the population. Further, health services are themselves a form of wealth. Health findings and health services seriously affect the world of industry and commerce. On the other hand, our health is greatly affected by the way we earn our living and the kind of society in which we live.

Few people realize that health is big business in the United States. By 1962, the investment in hospitals alone in this country stood at \$20 billion. In addition to hospitals, the health service industry uses a huge amount of assets in the form of clinics, physicians' offices, laboratories, and related facilities.

But in health work the accent is on personnel rather than plant. Thus, the health industry is much larger than the \$20 billion investment in hospitals would indicate. If we measure industries by their numbers of workers, the health service industry ranks about seventh in this country. The 2.6 million people in health services include 1.2 million professional and technical personnel and an army of clerical workers and others. Nor am I defining the health service industry in its most inclusive sense. For example, I have omitted the production of drugs and prosthetic appliances, important as these are, in the total health picture.

Another measurement is spending. In 1949-50 we spent about \$12 billion for health, including personal medical care, construction, and government expenditures. Today we are spending \$33 billion, about 5.4 percent of the

gross national product. This represents our dollar effort for health.

No one can actually measure costs in human suffering or the total amount of capital gains in the prevention and cure of illness. But as a nation we can think usefully in terms of health assets, health liabilities, and growth potential.

## Growth Potentials of Health Gains

What do we mean by growth potential? One way of considering it is to review some health gains and the resulting economic progress. Before World War II, for example, malaria cost the 13 southern States an estimated half a billion dollars a year in lost productivity. The intensive malaria control program which lifted this burden cost in all about one-tenth of a single year's economic loss.

Only 11 years ago 53,000 cases of paralytic poliomyelitis occurred annually in this country. Poliomyelitis is one of the costliest diseases in every form. Early this year, 2 weeks went by without a single case reported to the Public Health Service. This represents a tremendous achievement. In April of 1964 the New York City Health Department reported that the city's antipoliomyelitis campaign is saving \$2.2 million a year in the cost of caring for patients.

Striking economic gains can be reported in other public health fields. Control of industrial health hazards so successfully protects workers in the United States from occupational diseases that less than 2 percent of man-days are lost from job-related sickness. Accident prevention in industry has also dramatically reduced the death rate.

The savings in productivity and compensation costs as a result of health and safety services in industry are incalculable. Some large firms,

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for example, have cut in half the man-days lost from nonoccupational illness with concurrent decreases in sickness and accident payments ranging from 25 to 60 percent.

But liabilities remain. The total burden of ill health on the economy remains high. A number of infectious diseases have virtually disappeared in the United States, and the costs of these diseases have declined correspondingly. In the same period, however, losses of productivity from other diseases as well as the costs of care have soared astronomically.

In a sense, the economic burden the nation once carried as a result of diseases now under control has been shifted to other causes of ill health—and it has increased.

Today the major killers and cripplers are the chronic diseases, such as heart disease and cancer, afflictions which mostly take their toll later in life. In 1960, for example, there were 14 times as many deaths from chronic non-infectious as from infectious diseases.

Between 1940 and 1961, Michigan's death rate from influenza and pneumonia declined by more than half. At the same time, the death rate in Michigan for heart disease rose 9 percent and for cancer, 21 percent.

### **The Price of Pollution**

Our environment — highly industrialized, urban, and mobile—gives rise to another set of health problems. Among these are emotional tensions, accidents, and pollution of the air we breathe and the water we drink.

The health impact of pollution cannot be considered apart from its economic impact. Water pollution, for example, seriously impairs the use of some waterways for anything but waste disposal. This results in depressed land values, loss of recreational sites, increased health hazards, and community blight.

But the economic effects of water pollution are diffused. Prices of manufactured goods are higher because the firms must make costly investments to treat polluted waters. Municipalities must provide for costly water treatment to protect health. Costs go up when people must seek more distant places for recreation.

Many communities are hurt by pollution in the competitive quest for new industry. As one city official recently remarked, "I have shown

some factory sites to many manufacturers. Everything was rosy until the analysis of the river water came back." It is not difficult to imagine the downhill slide of payrolls, taxes, and retail sales, both from the failure to attract new industry and the departure of established plants. The high coincidence between polluted streams and "pockets of poverty," I might add, is noteworthy.

The nation is not blandly accepting this condition. Between 1957 and 1963, more than \$2.5 billion was invested in municipal sewage treatment plants. About 80 percent of this total was local government funds. The rest, provided through the Public Health Service, came from the Federal Government. During 1963, \$820 million was spent for this purpose by municipalities, the highest single-year record. At this rate, the nation can—if it will—provide complete protection of the watercourses from pollution by municipal sources within 5 years!

Air pollution also has both a direct and a hidden economic burden. It contributes to asthma, bronchitis, emphysema, lung cancer, and other illnesses. Although the total dollar cost cannot be calculated, its impact in terms of lost earning capacity, lost production, and increased costs for care is enormous.

Air pollution exacts a second kind of toll. The pollutants spewed into the atmosphere from factories, homes, motor vehicles, and from burning mountains of refuse are eroding the face of the nation. They destroy buildings, damage painted surfaces, injure livestock and vegetation, and soil our cities. This cost has been estimated at \$11 billion a year.

The irony here, as in other health areas, is that this loss is many times greater than the expenditure which would be required to control air pollution. If we neglect this investment, we commit ourselves to paying, year after year, the greater cost of living with dirty air.

The national effort to control air pollution now totals considerably less than \$1 billion a year from all sources. State and local governments are spending about \$10 million a year for this purpose. This level is hardly adequate to cope with a problem which affects 107 million people. Industry, too, has a great stake in the control of air pollution, not only to reduce the staggering losses imposed on our indus-

trial output but also because control now is a bargain compared with the costs of postponement.

I cannot leave this subject without mentioning something particularly important to Detroit. A nation that accepts the automobile as an essential is coming to understand that the air pollution produced by nearly 80 million vehicles is an important part of this national problem. The American people look to the automotive industry to find ways of reducing this hazard. And they are looking to government to safeguard them against health hazards over which they have no control. We in the Public Health Service will continue to work with the automotive industry to find solutions for this mounting problem.

### **The \$15 Billion Loss**

Accidents comprise another major source of human and economic losses. More than 101,000 people were killed by accidents last year, and 45 million were injured. Each year 12,000 children between 1 and 15 years of age die from accidents.

In economic terms, 68,000 hospital personnel and 50,000 hospital beds are needed to care for accident victims. Accidents cost \$15 billion annually. The president of a leading company recently said: "Off-the-job accidents alone cost more than \$7 billion a year. Put another way, this amounts to more than \$100 for every employed person in the country."

Many of these accidents occur in the home, but a vast number take place on the highway. The attack against them must be broad. It is not reasonable to place the prime burden of responsibility on the Detroit stylist, or the highway engineer, and overlook other factors. On the other hand, the automotive industry has an obligation to build in safety factors. I am happy to note in this regard that more manufacturers are making seat belts standard equipment on their new models.

The Public Health Service's area of competence in accident prevention is with people. We are the only agency exclusively concerned with the human factors—the mental and physical requirements—of the driving task. What effects do fatigue, disease, alcohol, drugs, and emotional state have on driving performance?

What are the minimum physical and mental requirements for driving?

For really scientific answers to these questions, a massive research effort is necessary. We need to give accidents the same kind of attention we give to disease. The automotive industry can demonstrate its public-spirited concern for safety by encouraging and supporting this effort.

### **Research and Development in Health Work**

The gains from a more effective attack on our health problems cannot be won overnight. Nor can they be won without expenditures. Businessmen are well aware of the fact that to make money they must spend money.

All of you know, for example, the role of research in industry. In the changing health service industry, research is a fast-growing component. In 1947, this nation was investing only \$88 million in medical research. By 1963, we were spending nearly 18 times that amount, \$1.6 billion. About 62 percent of this was provided by the Federal Government, chiefly for research carried on outside the Federal Government; that is, in universities, laboratories, and hospitals throughout the United States. One-fourth of the total amount came from business, with the remainder accounted for by private philanthropy, State and local governments, and the like.

The product of this effort has been impressive. Let me cite a few signs of progress.

Advances in detection, diagnosis, and treatment have markedly improved the prospects for cancer patients. Twenty years ago, fewer than one of every five cancer patients could hope to survive. Now, one in three survives the 5-year period. Under optimum conditions of early discovery and treatment one in two can be saved.

There has been more progress in surgery, particularly heart surgery, in the past 15 years than in the previous 2,000. Many forms of heart disease, such as rheumatic heart disease and high blood pressure, are yielding to new knowledge.

Unfortunately, research in health has not been matched by an equally resourceful "development" effort. In industry, research and devel-

opment go hand in hand. In health work, development—the application of new knowledge—has lagged far behind.

There are several reasons for this lag. First, we have not found the most effective ways of delivering modern health services to people—when and where they need them. Second, shortages of health manpower continue to be critical. Finally, too many people still cannot afford to meet the costs of medical care.

None of these obstacles is easy to overcome. But they must be overcome if the bright promise of modern science is to become a reality for all our people.

I am happy to be able to report some beginnings.

Field studies, demonstrations, and pilot projects in health are akin to development programs in industry. The Public Health Service is currently supporting, under the Community Health Services and Facilities Act of 1961, more than 150 such projects—particularly for the chronically ill and the aged. They are designed to help the homebound and bedridden get suitable care in their own homes.

Next, the thorny problem of manpower. It is true that the number of health workers has increased in the last decade. In relation to population growth and to demand, however, the need is still great. The Health Professions Educational Assistance Act of 1963 provides Federal grants to help build schools of medicine, dentistry, pharmacy, and other specialties. It also authorizes a program of loans for medical and dental students. With this help, we should be able to do a better job of keeping abreast of our need for manpower in the health professions.

But supporting personnel need to increase even more rapidly than professional people. From the physician, working alone, to the physician and nurse, we have moved to such complexity that, for each physician or dentist, we need about six other skilled workers. Some—sanitary engineers, for example—are themselves professionals, working parallel to the physicians. Others, such as technicians, multiply the effectiveness of the professional workers by freeing them for more demanding tasks. The health service industry needs to acquire vast numbers of people for such jobs.

This brings to mind two subjects which are

frequently discussed by industrialists and economists today: automation and trends in defense production.

To America as a whole, automation is a blessing and a source of problems. It can mean lower unit costs of production, and it can also mean displaced employees. But it can also provide a source of badly needed health personnel. The health service industry needs a vast number of recruits, highly diverse as to skills and training.

This nation has of necessity focused a considerable part of its plant, equipment, and manpower on the production of military materials. Thoughtful men, no matter how eager for peace, ask what would happen to our economy if we suddenly and sharply reduced the amount of resources which are applied to military purposes. To me, this hardly seems a cause for worry, since I represent an enterprise in need of expansion. If equipment and manpower become available, health services will be glad to make use of a substantial part of what is offered—glad, not primarily because plants need orders and men need jobs, but because we have big tasks before us that need doing.

We cannot discuss the economics of national health without considering the financing of health care. Personal health care, such as the services of physicians and hospitals, is largely privately financed. But, as the leaders of American industry know, insurance is steadily replacing direct payment for care. In 1962, for example, two-thirds of the private financing of hospital bills plus physicians' bills and so on was done through insurance.

The growth of health insurance is fortunate in view of the increasing costliness of medical care. We are providing more services and more complex services. It is difficult to see how most people could meet heavy medical expenses without health insurance protection.

Unfortunately, however, this protection declines sharply in the later years, when both decreased income and poorer health make it most necessary. Hardly more than half of our aged have any health insurance protection, and in general, such protection as they have is quite limited.

President Johnson's proposal for using the Social Security System to administer a program

of hospital insurance for the aged is a response to this need. I am convinced that it represents the most logical and effective means of meeting a critical problem of our society. I commend it to your thoughtful attention. It will help prevent dependency and poverty without disturbing the physician-patient relationship or imposing government control. I urge you to consider the proposal for what it is, rather than condemn it for what it is not.

I have reviewed some highlights of the economics of health. In conclusion, I want to rein-

force my major theme: health work yields enormous returns in both human and economic values.

To increase this yield, we must sharpen our attack on today's health problems. We should encourage full use of all community resources and effort in the attack. Thus we will increasingly change the debits of premature death, prolonged disability, and high costs of care to the assets of improved health, greater economic efficiency, and enjoyment of life. Health is our best investment.

### **Versatility of Tranquilizers**

The passive, withdrawn, apathetic mental patient benefits even more from tranquilizers than the agitated abusive one, according to Dr. Jonathan O. Cole, director of the Psychopharmacology Service Center, National Institute of Mental Health, Public Health Service.

A 9-hospital collaborative study of 340 mental patients, financed and directed by the service center, showed that among symptoms considered fundamental to schizophrenia the following are most improved by the phenothiazines (the most widely used so-called tranquilizers): poor social participation, poor self-care, confusion, indifference to environment, and hebephrenic gestures (grimacing and giggling).

In contrast, hostility, agitation, anxiety, and ideas of perception—symptoms usually regarded as “target symptoms” for tranquilizing therapy—although influenced by the drug treatment, were not affected to as great a degree.

The phenothiazines' action is thus broader and more versatile than is presently outlined in standard medical texts. According to Dr. Solomon Goldberg, the study coordinator, these drugs alleviated the patient's pretreatment symptoms and prevented development of other characteristics of the disease. The authors conclude that the phenothiazines seem to have a general alleviating and preventive anti-schizophrenic action and can be used appropriately for a wide variety of schizophrenic patients.